FORMAL OPENING OF THE LAKE LABORATORY BUILDING.

HERBERT OSBORN.

The formal opening of the new building for the Lake Laboratory on Cedar Point near Sandusky, occurred July 2nd, 1903. A number of invited guests were present in addition to the students and investigators enrolled for the summer. After a time spent in the inspection of the building and its appointments, all assembled in the main lecture hall and listened to a program including addresses by Prof. C. J. Herrick, Denison University, President of the Ohio State Academy of Science and Secretary of the Section of Zoology, American Association for the Advancement of Science;

THE LAKE LABORATORY BUILDING. (Photo by Herbert Osborn.)

Hon. John T. Mack, of Sandusky, member of the Board of Trustees; Prof. J. V. Denney, Dean of the College of Arts, and Herbert Osborn, Director of the Laboratory. Letters were read from a number of leading scientific workers of the country expressing regrets at inability to be present and congratulations on the successful establishment of the laboratory.

Mr. Mack spoke especially for the Trustees and for the citizens of Sandusky, who have taken an active interest in the progress of the laboratory. Prof. Denney dwelt upon the relation of the laboratory to general education and to the university and college life of the State. Both of these addresses were especially happy and

appropriate, but being delivered without manuscript are, unfortunately, not available for publication. The others were published in the Sandusky *Register* in its issue of July 3d.

Prof. Herrick's address, "The Summer Laboratory as an Instrument of Biological Research" (printed in full in SCIENCE, Vol. XVIII, No. 452, p. 263, August, 1903), after treating in a very instructive and interesting manner of the sphere of the summer biological laboratory or station, its duties and responsibilities, closed with the following encouraging words for the Cedar Point Station:

"The summer laboratory should be a clearing house of scientific ideas, not merely a hotbed or forcing house for budding researches. To meet this need it is evident that the greater the diversity in personnel and range of interests represented, the better. That which the university student prizes most is the intimate daily contact in the lecture room and laboratory with his instructors. In the properly organized summer biological station every worker comes into that same sort of relation with every other worker, and this, I take it, is the best that the station can offer to its patrons. To attain the highest efficiency there must, therefore, be sufficient flexibility of organization and diversity of interests represented to correct the tendencies toward intellectual inbreeding which we find in most of our university and college laboratories and to secure a sort of cross-fertilization of scientific organizations.

"Regardless of the individual investigator's problem and method, he can well afford to utilize such opportunities; indeed, he cannot afford, except in unusual cases, to neglect them for long periods, if he would retain his intellectual tone and elasticity. The station, in short, is an exceptionally favorable aid in effecting that breadth of view and perfection of co-ordination which we have seen to be the keystone in the arch of scientific achievement.

"It is a source of congratulation to us, the members of this laboratory, that these liberal principles are clearly at the foundation of our present organization. Our director has made it very plain, not only by word of mouth, but much more forcibly in practical ways, that it is to be the policy of our laboratory to secure the widest co-operation among all the men of science of our State. To this, as the representative of organized science in Ohio, I have pleasure in responding with equal cordiality that it will be our purpose to share in the great work here established to the full extent of our ability, by attendance when possible, and by sympathetic interest at all times. While we are the gainers by this liberal hospitality offered by the laboratory, it is certain that the laboratory in thus casting its bread upon the waters will find it again after many days."

Address of Capt. Alexis Cope, Secretary Board of Trustees, Ohio State University.

The movement toward the establishment of a lake laboratory for the Ohio State University at Sandusky began in the fall of 1894. The late lamented Dr. D. S. Kellicott, then Professor of Zoology and Entomology, in an interview with the secretary expressed some discouragement over the prospects of the scientific departments of the university. It was just after registration day and a number of students in the scientific courses who came later had not yet returned. The secretary suggested some special advertising of the science courses. In this conversation Professor Kellicott mentioned the fact that the University of Michigan had a lake laboratory somewhere on the lakes, I think at Charlevoix, supported by the Fish Commission. The secretary at once said, why not have such a laboratory for the State University at Sandusky, in co-operation with our own State Fish Commission? They have a building there and, for the present at least, might allow us to use a portion of it for a laboratory. He at once responded eagerly to the suggestion, and said Sandusky was the best point on the lakes for a station. We at once opened the matter with Hon. H. B. Vincent, then president of the Board of Commissioners of Fish and Game, who took the matter up and considered it favorably, and as a result of such conferences, Dr. Kellicott drew up the following communication to the Board of Trustees, which was presented to them at a meeting held January 15, 1895. It is given in full because it has never been printed, and because it states so fully the objects and purposes of the laboratory as conceived by Dr. Kellicott, who may well be called its founder. It is as follows:

To the President and Trustees of the Ohio State University:

SIRS—At different times I have had conversation with President Scott, Secretary Cope and others concerning a lake laboratory under the patronage of the university. I now ask the privilege of stating to you in writing my views of this matter, and, in this connection, of another closely connected with the former, and ask you to consider both propositions.

The questions are: 1, The establishment in the near future of a lake laboratory at or near Sandusky; and 2, the creation of a State collection of the fishes of Ohio.

THE LABORATORY.

The purpose of the plant that I would advocate is to afford an opportunity and a stimulus to instructors and students of biology in the university to spend their vacations investigating living problems in biology, especially such as are connected with important industries like the fisheries.

The obvious advantages to the university are: 1, Prestige. 2, Practical training of our students. 3, The sure increase of our collections; and 4, it should extend the usefulness and influence of the university.

THE LOCATION.

I think it would be difficult, if not impossible to find, anywhere about the Great Lakes, a more suitable place for such a station than at some point near Sandusky.

I may say that I spent the greater part of the time from June 23 to August 1st last, at Sandusky, Toledo and about the islands, and found the whole region unsurpassed in richness of material and in advantages for study.

The plant that I consider necessary for success in this undertaking may be briefly outlined as follows: 1, The main thing is a building that shall give shelter and security to the investigators and their outfit. This could be constructed in the simplest manner; the size should be sufficient to accommodate six to ten men, say 24 x 30 feet, and with two floors; the lower for the storage of boats and apparatus, and for the coarser operations of "preparing"; the upper for tables and aquaria. 2, The necessary furniture for convenience in work (apparatus, books, etc., could be moved up from the university and returned annually); 3, boats, nets and aquaria.

NOTE: Michigan has such a station supported by the Fish Commission, the university furnishing the investigators and the apparatus. The station is movable. It is this year as last at Charlevoix, where a building has been rented for a term of years as I understand it. The president, at least, of the Fish and Game Commission of Ohio favors a similar arrangement, but has, at present, no funds.

The State Hatchery at Sandusky, which Mr. Vincent kindly allowed me to use last summer, is well located, but it is not suitable for the work contemplated, as the main room is wholly occupied by hatching jars and apparatus. By making comparatively slight changes it would serve the purpose very well.

I was told by men interested that the United States Fish Commission want the hatchery for a railway shipping station to accommodate distribution of fry from the United States Hatchery at Put-in-Bay.

NOTE 2: I cannot help but think it would be better, if expedient, for the university to own and control the matter without reference to the Fish and Game Commission, except to co-operate with it in every way possible in securing knowledge of the habits of fishes, on which intelligent culture depends. It would then be a university affair and those in charge would have but one aim and one master. It would leave us independent to work in any line without criticism.

THE COLLECTION.

The second question may be more briefly stated. A complete collection of the fishes of the State does not exist. It is much needed: 1, Students of fishes often want an authentic collection for comparison and identification. 2, Questions in law often arise that cannot be truthfully settled without such specimens. 3, Such a collection must awaken interest in the subject; and 4, it would surely prove of much immediate usefulness in the Department of Zoology.

The amount needed to enable a vigorous prosecution of the work during the coming summer, I estimate as follows: 1, A barrel of alcohol, $30; 2, five pounds of formaline (a new preservative), $6; 3, bottles and anatomical jars, $50 (for one year's work); 4, nets, etc., $15; 5, for buying desired species of fishermen and in the market some student help in dredging and for transportation, $50. Total, $150

The last fish cannot be secured the first or second year, but all the food fishes and many others may be had at once; these will include nearly all the larger species, so the cost hereafter will be slight annually and no special appropriations will be necessary.

I would like to begin preparation at once and to be able to secure during the winter such species as come to the Columbus market iu good condition.

Mr. Vincent has agreed to aid in every way possible in this matter.

Respectfully, D. S. KELLICOTT.

The Board of Trustees referred the report to a committee consisting of Trustee John T. Mack, President W. H. Scott, Professor D. S. Kellicott and the secretary to make an investigation and report on the feasibility of the plan proposed at the next June meeting of the board. For some reason the committee did not submit its report to the Board of Trustees until September 2, 1895.

The report was drawn by Professor Kellicott and appears in the printed proceedings of the board. It was adopted and the sum of $350 was appropriated to carry out the recommendations of the report.

On September 17, 1895, the secretary wrote to Hon. H. B. Vincent, president of the Commissioners of Fish and Game, submitting a formal proposition to erect a second story to the Hatchery Building at Sandusky, with details for its joint occupancy, which, if accepted, would constitute a binding contract.

Mr. Vincent wrote saying he would call a meeting of the commission as soon as practicable and would recommend its acceptance.

The meeting was afterwards called and held at the Chittenden Hotel, in Columbus, December 19, 1895. The committee on the part of the university was present and the proposition was formally adopted.

Early in the summer of 1896, the addition, a second story to the Hatchery Building, was begun. The contract was let by Mr. Mack, who looked after the construction of the improvement and saw that it was properly done.

We learn from the Sandusky *Register* of July 10, 1896, that the building was about completed and would be accepted by Professor Kellicott that week. We also read in the same paper that "a second story has been added to the entire Hatchery Building and fitted up and provided with a large room for laboratory work, and several dormitories to be occupied by students during the summer."

The movement having in view the fine and commodious building which is formally opened to-day, began over four years ago. In September, 1899, the matter of further provision for the Lake Laboratory at Sandusky came before the Board of Trustees and was deferred until the next meeting. The matter came up again at a meeting held in November of the same year and was referred to a committee consisting of Trustee Mack, President Thompson and Professors Osborn and Kellerman.

The record does not show that this commitee submitted any formal report. It is presumed, however, that temporary arrangements were made for the further accommodation of the increasing number of students.

In June, 1901, President Thompson reported to the Board of Trustees that a petition had been sent to the Ohio Fish and Game Commission, asking for the use of the lower story of the building at Sandusky heretofore occupied by the Lake Laboratory, and produced a letter from Mr. L. H. Reutinger, secretary and chief warden, saying that the request had been granted. The preparation of such story was devolved upon Mr. Mack with the result that we all know. The provision was only temporary, and the indefatigable, silent and efficient Professor Osborn "kept at it," to use a little pardonable slang, until June 16, 1902, at a meeting of the Board of Trustees, President Thompson presented a list of improvements which, in his opinion, were desirable to be made in the next two years, and among them was a Lake Laboratory building at Sandusky to cost $2,500. After a full discussion of president's report the erection of a Lake Laboratory building was authorized and the sum of $2,500 was appropriated therefor. At the same meeting a committee consisting of Trustee Mack, President Thompson and Secretary Cope was appointed to secure if practicable a permanent lease of land on which to erect such laboratory. The rest is recent history and is quickly told. Plans were at once prepared by Professor Bradford under the direction of Professor Osborn. The Cedar Point Pleasure Resort Company, through its officers, Messrs. Jacob Kuebler, president, Geo. A. Boeckling, manager, and Hon. Eugene Guerin, generously tendered the present site, and on April 1, 1903, a formal lease thereof at a nominal rental was tendered to the Board of Trustees and accepted. On the same day the plans drawn by Professor Bradford were approved and the committee before named to secure the lease was directed to let the contract for the building.

At the opening of this fine building so well adapted to the purposes for which it was intended, it is fitting that proper acknowledgements should be made to those who have been connected with the Lake Laboratory in its origin, growth and final consummation.

The Lake Laboraty at Sandusky was first conceived by the late Professor David S. Kellicott. He thought out the plan for its establishment, indicated the scope of its work, and organized and directed it until the time of his death. It would be most fitting and proper if some memorial or tablet commemorating this fact could be perpetuated.

To the Hon. H. B. Vincent of McConnelsville, late President of the State Fish and Game Commission, we owe a debt of gratitude for the friendly co-operation which made the establishment of a Lake Laboratory at Sandusky a possibility.

To all those who have been connected with the location and erection of the present building, thanks and congratulations freely flow from all who are assembled here to-day; to the architect,

Professor Bradford; the contractor, Mr. George Feick; to the officers of the Cedar Point Pleasure Resort Company, and especially to the Hon. John T. Mack, Trustee of the University, who from the beginning has been its watchful and thoughtful guardian.

To Professor Osborn, whose quiet, earnest effort has largely contributed to this better opportunity for scientific investigation, thanks and congratulations are due for his part in the work. But he and his able associates, Professors F. L. Landacre and James S. Hine are to be further congratulated that to them is entrusted the present responsibility of seeing that this great laboratory shall be used with an eye single to the advancement of science and the public welfare in accordance with the aims of its founder, and that the students who go forth from it shall be so inspired by the spirit of truth that they shall be its devoted servants and loyal to it all their lives.

Remarks by Professor Herbert Osborn, Director.

After what has been said already I need not detain you with an extended statement of our purposes and plans in the work of our summer station. I would like, however, to mention some phases of our work and if possible, emphasize our position in regard to our relations to other institutions and to scientific workers in general.

Only about thirty years ago there was begun on a little island off the coast of Massachusetts what has proved to be the pioneer of the seaside and aquatic laboratories now so plentiful in different parts of the world. When Agassiz opened up his summer laboratory on Penikese he not only started a movement for the closer study of animal life under inspiring surroundings but he really inaugurated a movement in American education which has had a remarkable effect on the methods of teaching here and abroad. A method that involves the inspiration of personal contact with nature under the guidance of a lover of nature expert in understanding her ways.

I can myself remember the kindling of boyish ambition to go to Agassiz's school, for his name had then become a familiar one throughout the land. To study under his guidance was to my youthful fancy the height of opportunity. I remember, too, most distinctly, how bewildered and dazed I felt when I learned that Agassiz was dead. It had never occurred to me that Agassiz might die. I had never thought of him as a man who possibly was old but only as the representative teacher. In the airy castles of youth I had dreamed that possibly, some day, I might be able to come under his inspiring instruction.

Of course we may say that the direct method of study must have originated long before Agassiz's time, in fact such method can be referred readily to Aristotle and other early interpreters

of nature, and the plan has come forward as a new method of education at intervals ever since; only, however, to lapse again and again into dependence upon the indirect one of reference to printed authority or the mere dictum of the teacher. Nature study is certainly old, but it needs constant rehabilitation or it reverts to the methods of repetition.

But while Agassiz died and the Penikese station was abandoned, the spirit of the enterprise has blossomed out in hosts of schools and research stations where the fundamental purpose is identical with his. First and foremost of these is the famous zoological station at Naples, and our own Woods Holl stands, doubtless, next to it in length of life and scientific product.

Mere mention of the stations at Bayonne, Plymouth, Plon, Beaufort, Cold Spring Harbor, Casco Bay, Flat Head Lake, Illinois River, Madison, Winona Lake, Bermuda, Kingston, Jamaica and Vancouver's, shows the extent to which it has grown. They have contributed not only to the body of knowledge concerning plant and animal life but, more, they have taught the methods of original research and given inspiration to hosts of teachers throughout the country who have carried the research method into high schools and colleges to the profound improvement of methods of instruction.

This is not merely a process of teaching how to investigate; it is using the method of investigation as a process in education. Its purpose is to give the student both the impulse and the training by which he may gain new facts properly and correlate them with previous knowledge that is presented to him from the past. In short, to acquire and prove for himself that which he is asked to accept as the results of previous work by his predecessors.

It will be seen that we have a two-fold purpose though at bottom a single end—instruction and investigation. In our instruction we aim to show the methods of research used in investigations and to instruct or furnish information in the essential processes connected with the growth and perfection of science.

But we may go further and recognize that the acquisition of knowledge has wider purpose than the mere gratification of mental curiosity or the building up of an educational structure. Knowledge has its ultimate service in contributing to human needs, material as well as intellectual, in the promotion of human life and activity. I believe that we may, with perfect propriety, insist on the educational value of a method which involves, includes in its scope, the determining of facts that will be of practical service in the community and state.

The elaborate study of mosquito conditions on Long Island by the members of the laboratory at Cold Spring Harbor lose none of their scientific value and interest from the fact that they furnish a basis for most important service in prevention of disease

and suffering. If in the course of our investigations here we may be able to gain some fragments of knowledge that will serve the comfort of the community these will but add force and inspiration to the educational effort we have inaugurated.

With the occupation of this new building, the future home of our efforts, devoted exclusively to our use and planned especially for our purposes, we have reason, I think, to feel gratified. It is but just, also, to recognize the generous spirit of the Board of Trustees in providing these facilities for our work, the cordial reception of the citizens of Sandusky and the liberality of the Cedar Point Pleasure Resort Company in granting the beautiful site and the privileges accorded to workers in the laboratory.

It is also a matter for sincere gratification to note the hearty encouragement given the enterprise by our associates in the University Faculty and by biologists scattered over the country. Such interest and encouragement may well stimulate us to our best effort in the utilization of the opportunities now at our command.

We cannot let this occasion pass without reference to the devoted, unselfish scientific worker under whose direction it was established. Professor Kellicott was a man of unusual devotion to research. He showed rare discrimination in the selection of this beautiful bay as the location for a laboratory. We owe to him a meed of praise to-day, a word of appreciation, a pause for silent, reverential recognition of his services to education, science and humanity. To him life was a persistent effort in the acquisition of knowledge, and while he died in the prime of manhood he left a record of scientific achievement which may well inspire us all to greater effort.

With the past history of the laboratory known it should be an easy matter to read its future purpose and policy. It is our aim to further biological study in its every phase. To give opportunity to research and to furnish instruction and experience to build a sure foundation for successful work in teaching or investigation.

It is our firm belief that biology and biological methods have much to offer in any system of education; that its cardinal method of direct appeal to nature in the solution of the problems of nature, should be pushed into every grade of school work and that to this end teachers trained in the actual processes of direct study are essential. That such teaching in our schools is far too limited is, I think, fully recognized by those familiar with this work.

It is our hope and aim to make the laboratory of service to any student in any phase of biology that can be profitably studied under the conditions here. To make this as broad and emphatic as possible, we may say that it will be our policy to assist to the extent of our ability any competent scientific worker, from any

institution or locality, in the prosecution of any investigation which our locality and equipment may permit. I believe this represents the spirit of the Board of Trustees, the President, and all officially connected with the laboratory. I beleve this to be fully shown by the equipment already furnished and the attitude shown in making these facilities equally accessible to all who may desire to use them. We hope educators and scientific workers in our own and adjacent states especially will find it a profitable meeting ground and feel that its opportunities are open on the most liberal basis to all.

It may seem that the fragments of knowledge we gather are very insignificant, and it is entirely possible that we may not make any startling discoveries, but we should remember that the great body of science consists of innumerable individual facts, blended and related to a harmonious whole—as individual grains of sand comprise the long stretch of land, the magnificent beach, and the sightly dunes which constitute the basis of our new home. So we may hope that in all the new facts we gather we shall be able to correlate them with those already known, to blend them and round them to a more perfect symmetry, in short to add perhaps minute but essential parts to the completion of great structures.

Finally, I desire to express my profound thanks to the many who have evinced a cordial interest in our work, and especially to those who have taken the pains and time to be with us to-day.